

# Tomas Petricek – List of Publications

<http://tomasp.net> | [tomas@tomasp.net](mailto:tomas@tomasp.net)

## Personal Statement

I'm the author of 17 papers in highly selective conferences and journals, 5 of which received a best paper award, academic monograph that will be published by Cambridge University Press, as well as 24 other publications in conference and workshop proceedings, some of which are highly cited. I wrote a book for professional software developers, edited conference proceedings and special journal issue and also develop open-source software.

For historical reasons, the primary publication venues for computer science research are conference proceedings. Papers in highly-selective conferences have a standing equivalent to (or higher than) journal publications. For this reason, papers in conferences such as PLDI (A\*), POPL (A\*), ICFP (A), ECOOP (A) and ICALP (A) are listed in C1.

## A. Scientific Monographs

- **Tomas Petricek**. [Cultures of Programming: The Development of Programming Concepts and Methodologies](#). 351 pages, Cambridge University Press (in press), 2025  
The book documents important episodes from the history of programming, interprets them using a novel conceptual framework and provides programmers, computer scientists and historians of computing with a comprehensive account of the history of programming.

## C. Original Scientific Works

### C1. International Professional Journals

- Peter Taylor-Gooby, **Tomas Petricek**, Jack Cunliffe. [Covid-19, Charitable Giving and Collectivism: A Data-Harvesting Approach](#). *Journal of Social Policy*, vol. 52, issue 3, pp. 473-494, Cambridge University Press (IF: 1.9), [10.1017/S0047279421000714](https://doi.org/10.1017/S0047279421000714), 2023
- Joel Jakubovic, Jonathan Edwards and **Tomas Petricek**. [Technical Dimensions of Programming Systems](#). *The Art, Science, and Engineering of Programming*, vol. 7, issue 3, no. 13, [10.22152/programming-journal.org/2023/7/13](https://doi.org/10.22152/programming-journal.org/2023/7/13), 2023
- **Tomas Petricek**, Gerrit J. J. van Den Burg, Alfredo Nazabal, Taha Ceritli, Ernesto Jiménez-Ruiz and Christopher K. I. Williams. [AI Assistants: A Framework for Semi-Automated Data Wrangling](#). *IEEE Transactions on Knowledge and Data Engineering*, vol. 35, issue 9, pp. 9295-9306 (IF: 8.9), [10.1109/TKDE.2022.3222538](https://doi.org/10.1109/TKDE.2022.3222538), 2023
- **Tomas Petricek**. [The Gamma: Programmatic Data Exploration for Non-programmers](#). VL/HCC '22: Proceedings of the IEEE Symposium on Visual Languages and Human-Centric Computing, [10.1109/VL/HCC53370.2022.9833134](https://doi.org/10.1109/VL/HCC53370.2022.9833134), 2022
- Roly Perera, Minh Nguyen, **Tomas Petricek** and Meng Wang. [Linked Visualisations via Galois Dependencies](#). *Proceedings of the ACM on Programming Languages*, vol. 6 (POPL), pp. 1-29 (IF: 1.8), [10.1145/3498668](https://doi.org/10.1145/3498668), 2022
- Joel Jakubovic and **Tomas Petricek**. [Ascending the Ladder to Self-Sustainability: Achieving Open Evolution in an Interactive Graphical System](#). *Onward! '22: Proceedings of the 2022 ACM SIGPLAN International Symposium on New Ideas, New Paradigms, and Reflections on Programming and Software*, pp 240-258, [10.1145/3563835.3568736](https://doi.org/10.1145/3563835.3568736), 2022
- **Tomas Petricek**. [Composable Data Visualizations](#). *Journal of Functional Programming*, vol. 31, e. 13, Cambridge University Press (IF: 1.1), [10.1017/S0956796821000046](https://doi.org/10.1017/S0956796821000046), 2021
- **Tomas Petricek**. [Programming as Architecture, Design, and Urban Planning](#). *Onward! '21: Proceedings of the 2021 ACM SIGPLAN International Symposium on New Ideas, New Paradigms, and Reflections on Programming and Software*, pp 114-124, [10.1145/3486607.3486770](https://doi.org/10.1145/3486607.3486770), 2021

- **Tomas Petricek**. *Foundations of a live data exploration environment*. The Art, Science and Engineering of Programming, vol. 4, issue 3, no. 8, [10.22152/programming-journal.org/2020/4/8](https://doi.org/10.22152/programming-journal.org/2020/4/8), 2020
- **Tomas Petricek**. *What we talk about when we talk about monads*. The Art, Science and Engineering of Programming, vol. 2, issue 3, no. 12, [10.22152/programming-journal.org/2018/2/12](https://doi.org/10.22152/programming-journal.org/2018/2/12), 2018
- **Tomas Petricek**. *Data Exploration Through Dot-Driven Development*. ECOOP '17: European Conference on Object-Oriented Programming. Associated software artifact has been evaluated and archived in DARTS, vol. 3, no. 2, pp. 12:1–12:2, 2017, [10.4230/LIPIcs.ECOOP.2017.21](https://doi.org/10.4230/LIPIcs.ECOOP.2017.21), 2017
- **Tomas Petricek**. *Miscomputation in software development: Learning to live with errors*. The Art, Science and Engineering of Programming, vol. 1, issue 2, no. 14, [10.22152/programming-journal.org/2017/1/14](https://doi.org/10.22152/programming-journal.org/2017/1/14), 2017
- **Tomas Petricek**, Don Syme and Gustavo Guerra. *Types from Data: Making Structured Data First-class Citizens in F#*. PLDI '16: Proceedings of the 37th ACM SIGPLAN Conference on Programming Language Design and Implementation, pp. 477-490, [10.1145/2908080.2908115](https://doi.org/10.1145/2908080.2908115), 2016
- Alan Mycroft, Dominic Orchard and **Tomas Petricek**. *Effect Systems Revisited – Control-Flow Algebra and Semantics*. Essays Dedicated to Hanne Riis Nielson and Flemming Nielson on the Occasion of Their 60th Birthdays on Semantics, Logics, and Calculi, vol. 9560, pp. 1-32, [10.1007/978-3-319-27810-0\\_1](https://doi.org/10.1007/978-3-319-27810-0_1), 2015
- **Tomas Petricek**. *Against a Universal Definition of 'Type'*. Onward! '15: Proceedings of the 2015 ACM SIGPLAN International Symposium on New Ideas, New Paradigms, and Reflections on Programming and Software, pp. 254-266, [10.1145/2814228.2814249](https://doi.org/10.1145/2814228.2814249), 2015
- **Tomas Petricek**, Dominic Orchard and Alan Mycroft. *Coeffects: A Calculus of Context Dependent Computation*. ICFP '14: Proceedings of the 19th ACM SIGPLAN International Conference on Functional Programming, pp. 123-135, [10.1145/2628136.2628160](https://doi.org/10.1145/2628136.2628160), 2014
- **Tomas Petricek**, Dominic Orchard and Alan Mycroft. *Coeffects: Unified Static Analysis of Context-Dependence*. ICALP'13: Proceedings of the 40th International Conference on Automata, Languages, and Programming, Part II, pp. 385-397, [10.1007/978-3-642-39212-2\\_35](https://doi.org/10.1007/978-3-642-39212-2_35), 2013

### C3. International Peer-Reviewed Proceedings

- Jonathan Edwards and **Tomas Petricek**. *Interaction vs. Abstraction: Managed Copy and Paste*. PAINT '22: Proceedings of the 1st ACM SIGPLAN International Workshop on Programming Abstractions and Interactive Notations, Tools, and Environments, pp 11-19, [10.1145/3563836.3568723](https://doi.org/10.1145/3563836.3568723), 2022
- Joel Jakubovic, Jonathan Edwards, **Tomas Petricek**. *Technical Dimensions of Programming Systems*. PLoP '21: Presented at 28th Conference on Pattern Languages of Programs, Fall, 2021
- Jonathan Edwards, Stephen Kell, **Tomas Petricek**, Luke Church. *Evaluating Programming Systems Design*. PPIG '19: Proceedings of the 30th Annual Workshop of the Psychology of Programming Interest Group, <https://ppig.org/papers/2019-ppig-30th-edwards>, 2019
- **Tomas Petricek**. *Histogram: You Have to Know the Past to Understand the Present*. LIVE '19: Presented at International Workshop on Live Programming, <http://tomasp.net/histogram>, 2019
- Mariana Marasoiu, Sarwar Islam, Luke Church, Megan Lucero, Brooks Paige, **Tomas Petricek**. *Stories of storytelling about UK's EU funding*. EDCJC '18: Proceedings of the 2nd European Data and Computational Journalism Conference, [hdl:10197/9416](https://doi.org/hdl:10197/9416), 2018
- Pablo León-Villagrà, Sarwar Islam, Megan Lucero, Brooks Paige, **Tomas Petricek**. *You guessed it! Reflecting on preconceptions and exploring data without statistics*. EDCJC '18: Proceedings of the 2nd European Data and Computational Journalism Conference, [hdl:10197/9416](https://doi.org/hdl:10197/9416), 2018
- **Tomas Petricek**, James Geddes and Charles Sutton. *Wrattler: Reproducible, Live and Polyglot Notebooks*. TaPP '18: Proceedings of the 10th USENIX Conference on Theory and Practice of Provenance, pp. 1-6, 2018
- **Tomas Petricek**. *Tools for Open, Transparent and Engaging Storytelling*. Programming '17: Companion Proceedings of the 1st International Conference on the Art, Science, and Engineering of Programming, no. 5, pp. 1–2, [10.1145/3079368.3079382](https://doi.org/10.1145/3079368.3079382), 2017

- **Tomas Petricek**. *The Gamma: Programming tools for open data-driven storytelling*. EDCJC '17: Proceedings of European Data and Computational Journalism Conference, [hdl:10197/8634](https://doi.org/10.10197/8634), 2017
- **Tomas Petricek**. *Programming Language Theory: Thinking the Unthinkable*. PPIG '16: Proceedings of the 27th Annual Workshop of the Psychology of Programming Interest Group, <https://ppig.org/papers/2016-ppig-27th-petricek/>, 2016
- **Tomas Petricek**, Don Syme, Zachary Bray. *In the Age of Web: Typed Functional-First Programming Revisited*. ML/OCaml '14: Proceedings ML Family/OCaml Users and Developers Workshops, EPTCS 198, [10.4204/EPTCS.198.3](https://doi.org/10.4204/EPTCS.198.3), 2015
- **Tomas Petricek**. *The Gamma: Programming Tools for Data Journalism (Short Paper)*. FPW '15: Presented at the Future Programming Workshop, 2015
- **Tomas Petricek**. *What Can Programming Language Research Learn from the Philosophy of Science?*. AISB '14: Proceedings of the 40th Annual Convention of the Society for the Study of Artificial Intelligence and the Simulation of Behaviour, <https://tomasp.net/academic/papers/philosophy-pl/>, 2014
- **Tomas Petricek** and Don Syme. *The F# Computation Expression Zoo*. PADL 2014: Proceedings of the 16th International Symposium on Practical Aspects of Declarative Languages, vol. 8324, pp. 33-48, [10.1007/978-3-319-04132-2\\_3](https://doi.org/10.1007/978-3-319-04132-2_3), 2014
- Dominic Orchard and **Tomas Petricek**. *Embedding Effect Systems in Haskell*. Haskell '14: Proceedings of the 2014 ACM SIGPLAN Symposium on Haskell, pp. 13-24, [doi.org/10.1145/2633357.2633368](https://doi.org/10.1145/2633357.2633368), 2014
- Don Syme, Keith Battocchi, Kenji Takeda, Dona Malayeri and **Tomas Petricek**. *Themes in Information-Rich Functional Programming for Internet-Scale Data Sources*. DDFP '13: Proceedings of the 2013 Workshop on Data Driven Functional Programming, pp. 1-4, [10.1145/2429376.2429378](https://doi.org/10.1145/2429376.2429378), 2013
- **Tomas Petricek**. *Evaluation Strategies for Monadic Computations*. MSFP '12: Proceedings of International Workshop on Mathematically Structured Functional Programming, [arXiv:1202.2921](https://arxiv.org/abs/1202.2921), 2012
- Jonathan Edwards, **Tomas Petricek**. *Typed Image-Based Programming with Structure Editing*. HATRA '21: Presented at 2nd Workshop on Human Aspects of Types and Reasoning Assistants, [arXiv:2110.08993](https://arxiv.org/abs/2110.08993), 2012
- **Tomas Petricek**, Joel Jakubovic. *Complementary Science of Interactive Programming Systems (Extended Abstract)*. HaPoC '21: 6th International Conference on the History and Philosophy of Computing, <https://tomasp.net/academic/drafts/complementary>, 2012
- Don Syme, **Tomas Petricek** and Dmitry Lomov. *The F# Asynchronous Programming Model*. PADL'11: Proceedings of the 13th international conference on Practical aspects of declarative languages, pp. 175-189, [10.1007/978-3-642-18378-2\\_15](https://doi.org/10.1007/978-3-642-18378-2_15), 2011
- **Tomas Petricek** and Don Syme. *Joinads: A Retargetable Control-Flow Construct for Reactive, Parallel and Concurrent Programming*. PADL'11: Proceedings of the 13th International Conference on Practical Aspects of Declarative Languages, pp. 205-219, [10.1007/978-3-642-18378-2\\_17](https://doi.org/10.1007/978-3-642-18378-2_17), 2011
- **Tomas Petricek**, Alan Mycroft and Don Syme. *Extending Monads with Pattern Matching*. Haskell '11: Proceedings of the 4th ACM symposium on Haskell, pp. 1-12, [10.1145/2034675.2034677](https://doi.org/10.1145/2034675.2034677), 2011
- **Tomas Petricek** and Don Syme. *Collecting Hollywood's Garbage: Avoiding Space-Leaks in Composite Events*. ISMM '10: Proceedings of the 2010 International Symposium on Memory Management, pp. 53-62, [10.1145/1806651.1806662](https://doi.org/10.1145/1806651.1806662), 2010
- **Tomas Petricek**. *Encoding Monadic Computations in C# using Iterators*. ITAT '09: Proceedings of the Conference on Theory and Practice on Information Technologies, pp. 61–69, 2009

## E. Other Professional Work

### Books and Tutorial Publications

- **Tomas Petricek**. *Accessing Data with F# Type Providers*. Pluralsight, <https://www.pluralsight.com/courses/accessing-data-fsharp-type-providers>, 2016  
A highly rated (5 out of 5 stars) two-hour video course that introduces F#, type providers and the F# Data library that I developed as a post-doctoral researcher at Microsoft Research.
- **Tomas Petricek**. *Analysing and Visualizing Data with F#*. 56 pages, O'Reilly Media, ISBN 9781491939529, 2015  
An introduction to data science, using the F# language and the FsLab package that I developed as post-doctoral researcher at Microsoft Research.
- **Tomas Petricek**, Phil Trelford (eds.). *F# Deep Dives*. Manning, ISBN 9781617291326, 2014  
A collection of case studies of functional programming in industry. I edited the book and contributed 3 chapters. Rated 4.3 out of 5 stars on Amazon.
- **Tomas Petricek** with Jon Skeet. *Real-World Functional Programming*. Manning, ISBN 9781933988924, 2009  
Highly-acclaimed (4.5 out of 5 stars on Amazon), best-selling (10,000 copies sold) introduction to functional programming using F# and C#.

### Editorial Work and Reviews

- **Tomas Petricek**. *Language and the Rise of the Algorithm* by Jeffrey M. Binder (review). *Technology and Culture*, Johns Hopkins University Press, vol. 65, no. 1, pp. 427-429 (IF: 0.8), [10.1353/tech.2024.a920566](https://doi.org/10.1353/tech.2024.a920566), 2024
- Mark Priestley, **Tomas Petricek** and David Hemmendinger. *Report on HOPL IV - ACM SIGPLAN History of Programming Languages Conference*. *IEEE Annals of the History of Computing*, vol. 43, issue: 3, pp. 83-85, [10.1109/MAHC.2021.3098957](https://doi.org/10.1109/MAHC.2021.3098957), 2021
- **Tomas Petricek**, Helena Durnova and Mark Priestley (eds.). *Special Issue on Computing and Programming in Context*. *Philosophy & Technology*, vol. 34, issue 1, 219 pages. SI published 7 out of 12 submitted papers, [10.1007/s13347-020-00411-w](https://doi.org/10.1007/s13347-020-00411-w), 2020
- Hidehiko Masuhara and **Tomas Petricek** (eds.). *Onward! 2019: Proceedings of the 2019 ACM SIGPLAN International Symposium on New Ideas, New Paradigms, and Reflections on Programming and Software*. ACM, New York, United States, ISBN 978-1-4503-6995-4, 2019
- **Tomas Petricek**. Critique of 'An anatomy of interaction: co-occurrences and entanglements'. *Programming '18: Companion Proceedings of the 2nd International Conference on the Art, Science, and Engineering of Programming*, pp 197-201, [10.1145/3191697.3214329](https://doi.org/10.1145/3191697.3214329), 2018

### Open-Source Software

- **Compost.js: Composable Data Visualization Library**. <https://compostjs.github.io>, 2020  
JavaScript library for creating data visualization described in *Journal of Functional Programming* paper (JFP 2021). The system inspired work at Institute of Computing for Climate Science, University of Cambridge.
- **Coeffects: Context-Aware Programming Languages**. <http://tomasp.net/coeffects>, 2016  
Interactive web-based essay that demonstrates the theory developed in my PhD thesis. The essay has been recognised as an influential example of explorable visualization and has over 35,000 views.
- **The Gamma: Tools for Data Journalism**. <http://thegamma.net>, 2015  
Allows journalists to create open data-driven articles and was presented at European Conference on Computational and Data Journalism, 2016 and Computation+Journalism 2015, NYC.
- **Deedle: Exploratory Data Library for .NET**. <https://fslab.org/Deedle>, 2013  
Data and time-series analysis library developed at BlueMountain Capital. The library has over 30 contributors, has been used for bioinformatics research and has a new industry maintainer. It was presented at CUFP 2014.

- **F# Data: Library for Data Access.** <https://fsprojects.github.io/FSharp.Data>, 2012

Library for accessing structured data using F# type providers. I created the first version, coordinated the development and successfully transferred the library to a new industry maintainer. The library is the most downloaded library for F# and has over 100 contributors.

## H. Dissertation Thesis

- **Tomas Petricek.** *Context-Aware Programming Languages*. PhD Thesis, University of Cambridge, Available as UCAM-CL-TR-906, [10.48456/tr-906](https://www.cl.cam.ac.uk/research/infocv/papers/10.48456/tr-906), 2017

Introduces a notion of *coeffects*, which has been presented in two highly-cited academic papers (ICALP '13, ICFP '14) and has been subject of multiple grants in the UK, France, USA and Iceland. A novel interactive web-based presentation of the work, published at <https://tomasp.net/coeffects>, has attracted over 35,000 visitors.